U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

PREPARED IN COOPERATION WITH THE
NEVADA OPERATIONS OFFICE, U.S. DEPARTMENT OF ENERGY

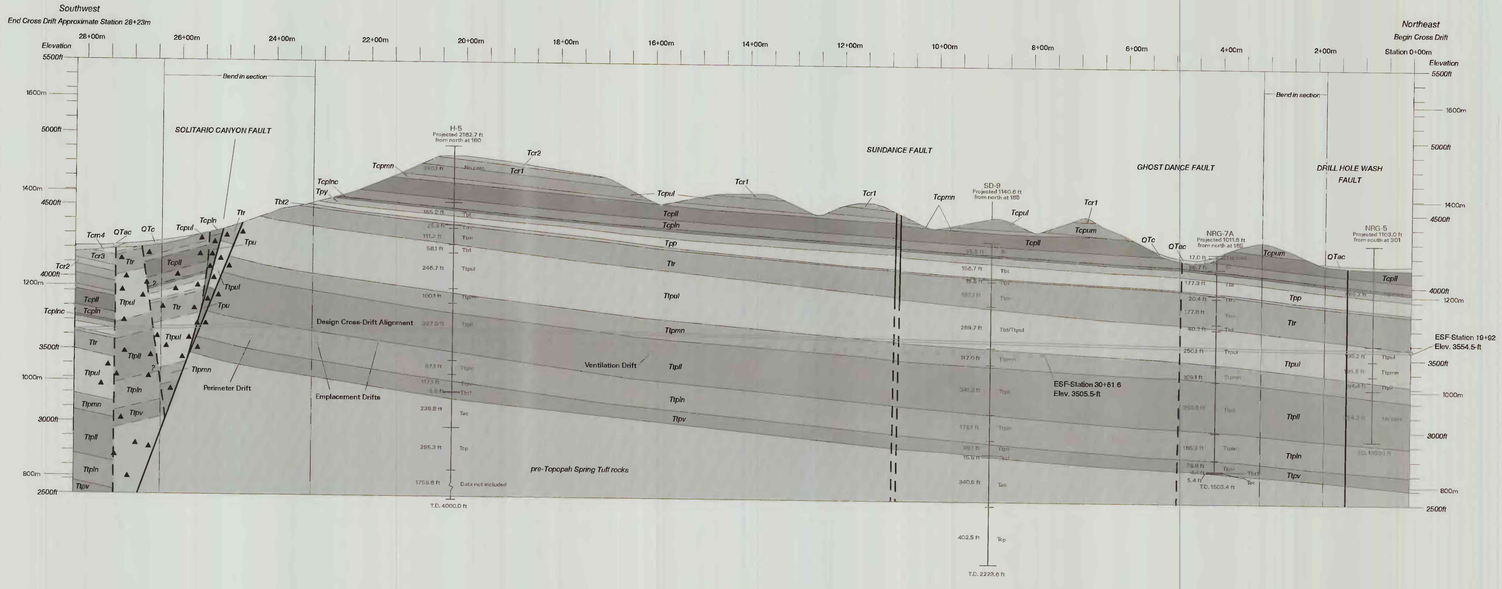
FILE REPORT OFR98-530
Plate 1
Potter and others-GEOLOGIC MAP AND PRECONSTRUCTION GEOLOGIC SECTION ALONG THE CROSS-DRIFT ALIGNMENT, YUCCA MOUNTAIN, NV

Topographic basemap from the 1:6000-scale topographic contour data produced from the orthophoto mission flown in 1990 by EG&G for the U.S. Department of Energy, Nevada State Plane Coordinates (in feet and meters) are for the Central zone of Nevada and are based on Polyconic projection.

from Day, W.C., Potter, C.J., Sweetkind, D.S., Dickerson, R.P., and San Juan, C.A., 1998, Bedrock geologic map of the central block area, Yucca Mountain, Nye County, Nevada: U.S. Geological Survey Map I-2106, Scale 1:6000, 2 plates with text.

CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

0 1000 2000 3000 4000 5000 FEET
0 250 500 750 1000 1250 METERS




## EXPLANATION OF STRATIGRAPHIC UNITS

### Quaternary and Tertiary surficial deposits

- QTac — Alluvial and colluvial deposits
- QTc — Colluvial deposits

### Timber Mountain Group

- Tmr — Rainier Mesa Tuff

### Paintbrush Group

- Tpu — Undifferentiated Paintbrush Group
- Tc — Tiva Canyon Tuff, undifferentiated (Tpc*)

### Tiva Canyon Tuff, crystal-rich member

Nonlithophysal zone (Tpcrn*)

- Tcm4 — Subvitric transition subzone (Tpcrn4*)
- Tcm3 — Pumice-poor subzone (Tpcrn3*)
- Tcr2 — Mixed pumice subzone (Tpcrn2, Tpcrl2*)
- Tcr1 — Crystal transition subzone (Tpcrn1,Tpcrl1*)

### Tiva Canyon Tuff, crystal-poor member

- Tcpul — Upper lithophysal zone (Tpcpul*)
- Tcpum — Upper lithophysal zone and middle nonlithophysal zone undivided (Tpcpul*,Tpcpmn*)
- Tcpmn — Middle nonlithophysal zone (Tpcpmn*)
- Tcpll — Lower lithophysal zone (Tpcpll*)
- Tcpln — Lower nonlithophysal zone (Tpcpln*)
- Tcpv — Vitric zone (Tpcpv*)

### Post-Topopah Spring Tuff, pre-Tiva Canyon Tuff units

- Tbt — Bedded tuff, undifferentiated (may include Tpbt4*, Tpv*, Tpbt3*, Tpp*, Tpbt2*)
- Tpv — Yucca Mountain Tuff (Tpy*); includes pre-Tiva Canyon Tuff bedded tuff (Tpbt4*)
- Tpp — Pah Canyon Tuff (Tpp*), includes pre-Yucca Mountain Tuff bedded tuff (Tpbt3*)
- Tbt2 — pre Pah Canyon Tuff bedded tuff (Tpbt2*)

### Topopah Spring Tuff, crystal-rich member

- Ttr — Crystal-rich member, undifferentiated (Tptr*)
- Ttrv — Vitric zone, locally includes densely welded zone (Tptrv1*,Tptrn3*)
- Ttrn3 — Densely welded zone (Tptrn3*)
- Ttrn2 — Pumice-rich zone (Tptrn2*)
- Ttrl — Crystal transition zone (Tptrn1*,Tptrl1*)

### Topopah Spring Tuff, crystal-poor member

- Ttpul — Upper lithophysal zone (Tptpul*)
- Ttpmn — Middle nonlithophysal zone (Tptpmn*)
- Ttpll — Lower lithophysal zone (Tptpll*)
- Ttpln — Lower nonlithophysal zone (Tptpln*)
- Ttpv — Vitric zone (Tptpv*)

Tbt1 — pre-Topopah Spring bedded tuff (Tpbt1*) (shown on stick logs only)

### Calico Hills Formation

- Tac — Calico Hills Formation (shown on stick logs only)

### Crater Flat Group

- Tcp — Prow Pass Tuff (shown on stick logs only)

*Stratigraphic nomenclature of Buesch (1996)

## EXPLANATION OF MAP SYMBOLS

- Contact - solid where exposed, dashed where approximately located
- Fault - solid where exposed or tightly constrained, dashed where approximately located, dotted where concealed beneath Quaternary cover, queried where inferred or uncertain. Ball and bar on downthrown side. Solid arrow indicates dip of fault plane. Paired arrows show relative horizontal movement
- Reverse Fault - teeth on upthrown side
- Strike and dip of compaction foliation
- Strike and dip of bedding
- Breccia
- Approximate location of the centerline of the Exploratory Studies Facility and 100 meter stations labeled every 1000 meters
- Approximate location of the centerline of the Cross-block drift
- Potential repository boundary
- NRG-4 — Drill hole location and number
- Unimproved road
- Approximate location of the Cross-block drift; circles indicate the approximate location of emplacement drifts (shown on cross-section)
- SD-9 — Borehole identification with distance and direction of projection
- Borehole log with geologic unit and thickness (shown on cross-section)
- Terminal depth of borehole

Notes:

1. The alignment of the cross-drift shown on the cross section is approximate.

2. Borehole Placement:
Lithologic logs for four boreholes are projected onto the cross section. These are projected along the local strike of internal (member and zone) contacts within the Tiva Canyon Tuff as defined by the mapping of Day and others (1998), except for NRG-5, which is projected from a position off the northeast end of the cross section. Borehole logs are vertically positioned at a datum defined by the top of the Topopah Spring Tuff, except for NRG-5 (in which the top of the Topopah Spring Tuff was not logged). NRG-5 is vertically positioned at a datum defined by the top of the Tiptul. Lithologic logs are from the following sources: H-5: Bentley and others (1983); NRG-5, NRG-7A: Brechtel and others (1996); SD-9: Engstrom and Rautman (1996).

Reference cited:

Bentley, C.B., Robison, J.H., and Spengler, R.W., 1983, Geohydrologic data for test well USW H-5, Yucca Mountain area, Nye County, Nevada: USGS Open-File Report 83-853, 34 p. DTN: GS910908312132.002

Brechtel, C.E., Lin, M., Martin, E., and Kessel, D.S., 1996, Geotechnical characterization of the North Ramp of the Exploratory Studies Facility (2 volumes): Yucca Mountain Site Characterization Project Report SAND96-0488/1 and SAND96-0488/2.

Buesch, D.C., Spengler, R.W., Moyer, T.C., and Geslin, J.K., 1996, Proposed stratigraphic nomenclature and macroscopic identification of lithostratigraphic units of the Paintbrush Group exposed at Yucca Mountain, Nevada: U.S. Geological Survey Open-File Report 94-469.

Engstrom, D.A., and Rautman, C.A., 1996, Geology of the USW SD-9 drill hole, Yucca Mountain, Nevada: Yucca Mountain Site Characterization Project Report SAND-96-2030, 128 p.

Day, W.C., Potter, C.J., Sweetkind, D.S., Dickerson, R.P., and San Juan, C.A., 1998, Bedrock geologic map of the central block area, Yucca Mountain, Nye County, Nevada: U.S. Geological Survey Map I-2106, Scale 1:6000, 2 plates with text.

# GEOLOGIC MAP AND PRECONSTRUCTION GEOLOGIC SECTION ALONG THE CROSS-DRIFT ALIGNMENT, YUCCA MOUNTAIN, NYE COUNTY, NEVADA

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